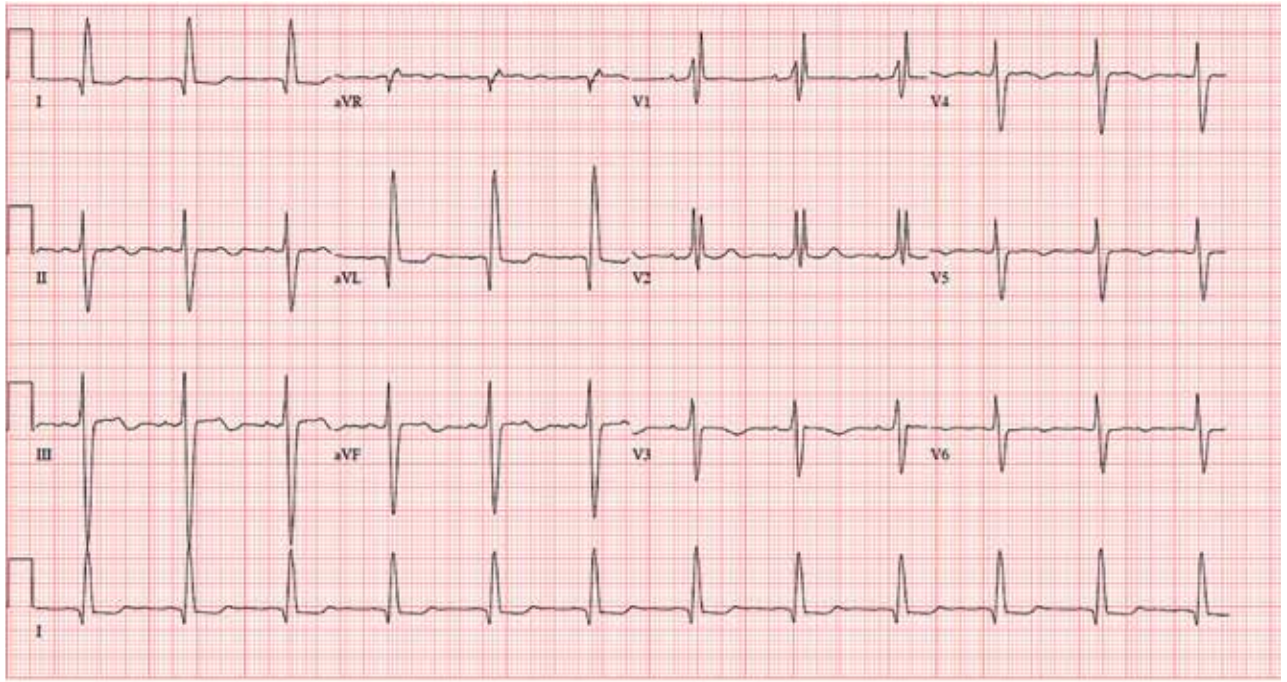


# Bury My Heart at Wounded Knee



**A** 72-year-old man with chronic osteoarthritis is scheduled for left knee replacement and sent for preoperative assessment. He has been physically active his entire life, but in the past five years, both knees have developed osteoarthritis that prevents him from walking more than 20 feet without stopping. He is obese and has hyperlipidemia and type 2 diabetes. He has never had angina, shortness of breath, paroxysmal dyspnea, or hypertension.

The patient is retired after 27 years' service in the Air Force followed by an 18-year career with a major airline. He is married, with three adult children who are all in good health. He quit smoking at age 35 but states half-seriously that he "gave up cigarettes for candy bars and ice cream." He says he drank heavily during his early years of service but rarely has more than one or two beers per week now.

Medical and surgical histories are remarkable for multiple arthroscopic procedures involving the medial meniscus and anterior collateral ligament of both knees.

He has also had xanthelasmas removed from both eyelids, surgical repair of a compound fracture of the left humerus, and shrapnel removed from the subcutaneous tissue on the left upper back.

His medication list includes atorvastatin and metformin. He is allergic to sulfa, which has induced anaphylaxis in the past.

The review of systems reveals he is hard of hearing; he has hearing aids but refuses to wear them. He wears trifocal glasses and a partial upper bridge. He denies any cardiac, pulmonary, neurologic, or gastrointestinal problems. He does report difficulty starting and stopping a stream of urine, as well as occasional accidents. He also admits to having erectile dysfunction but does not think it is a problem he needs to address.

Vital signs include a blood pressure of 124/74 mm Hg; pulse, 70 beats/min; respiratory rate, 14 breaths/min<sup>-1</sup>; and temperature, 98.4°F. His weight is 264 lb and his height, 69 in. He is pleasant, cooperative, alert, and oriented.

Physical exam reveals normal heart sounds without murmurs, clicks, or rubs.



**Lyle W. Larson, PhD, PA-C,** is clinical faculty in the Department of Medicine, Division of Cardiology, Cardiac Electrophysiology, at the University of Washington, Seattle.

*continued on next page >>*

>> *continued from previous page*

The lungs are clear in all fields. The abdomen is large but soft, and the liver edge is palpable 3 cm below the costal margin. Peripheral pulses are 2+ bilaterally in all extremities. Surgical scars are present on the left humerus, left scapula, and both knees. Neurologically, the patient is intact, and there is no evidence of microvascular disease secondary to his diabetes.

An ECG is performed. It reveals a ventricular rate of 71 beats/min; PR interval, 152 ms; QRS duration, 142 ms; QT/QTc interval, 476/517 ms; P axis, 76°; R axis, -48°; and T axis, 161°. What is your interpretation of this ECG?

### ANSWER

The correct diagnosis includes normal sinus rhythm with a left-axis deviation, right

bundle branch block, and left anterior fascicular block, consistent with bifascicular block.

Left-axis deviation is evidenced by an axis beyond  $-30^\circ$ . A right bundle branch block is marked by a QRS duration  $> 120$  ms, an RSR' pattern in lead  $V_1$  and often  $V_2$  and  $V_3$ , and wide S waves in lateral leads  $V_5$  and  $V_6$ .

A left anterior fascicular block is identified by a left-axis deviation beyond  $-45^\circ$ , a QR complex in lead I, and an RS complex in leads II and III.

The combination of a right bundle and left anterior fascicular block constitute bifascicular block. In this case, only the left fascicle conducts normally, putting this patient at risk for trifascicular block (ie, third-degree or complete heart block). **CR**